

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PERU

WATER RESOURCE MANAGEMENT MODERNIZATION PROJECT

(PE-L1070)

LOAN PROPOSAL

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Proposed resolution

ELECTRONIC LINKS	
REQUIRED	
1.	Annual work plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008201
2.	Monitoring and evaluation arrangements http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2024115
3.	Procurement plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008018
4.	Environmental and social management report http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008158
OPTIONAL	
1.	Institutional assessment – ICAS http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008221
2.	Socioeconomic evaluation report http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008224
3.	Operating Regulations http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2017415
4.	TOR for IWRM plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008253
5.	Execution costs and schedule http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2008013
6.	Socioinstitutional report http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=2017497
7.	Safeguard screening form for classification of projects http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=1889302

ABBREVIATIONS

AAA	Administrative Water Authority
ALA	Local Water Authority
ANA	National Water Authority
CC	Watershed Council
DESAS	Special Environmental Health Departments
ENGRH	Estrategia Nacional para la Gestión Integral de Recursos Hídricos [National Strategy for Integrated Water Resource Management]
IRH	Water Resources Institute
IWRM	Integrated water resource management
LRH	Water Resources Act
MEF	Ministry of the Economy and Finance
MINAG	Ministry of Agriculture
MINAM	Ministry of the Environment
PEU	Project Execution Unit
PMC	Project Management Committee
PMGRH	Water Resource Management Modernization Project
SENAMHI	Servicio Nacional de Meteorología e Hidrología [National Meteorology and Hydrology Service]
SNGRH	National Water Resource Management System

PROJECT SUMMARY

PERU

WATER RESOURCE MANAGEMENT MODERNIZATION PROJECT (PE-L1070)

Financial Terms and Conditions			
Borrower: Republic of Peru		Amortization period:	25 years
		Grace period:	5 years
Executing agency: National Water Authority (ANA)		Disbursement period:	5 years
Source	Amount	Interest rate:	LIBOR
IDB (Ordinary Capital)	US\$10,000,000	Inspection and supervision fee:	*
Local	US\$9,579,000	Credit fee:	*
Total	US\$19,579,000	Currency: US dollars from the Single Currency Facility Conversion option into Peruvian Nuevos Soles (PEN): Local Currency Facility (LCF)	
Project at a glance			
<p>Project objective/description: The project’s general objective is to contribute to the efficient use of water resources and related ecosystems in Peru by adopting a participatory approach based on sustainability and equity; and its purpose is to implement water resource management plans and instruments in the Chira-Piura, Santa, and Tacna watersheds. The specific objective is to improve water resources management at the national level and in selected watersheds, which is reflected in the project’s two components: (i) improving national integrated water resource management (IWRM) capacity; and (ii) improving IWRM in the Chira-Piura, Santa, and Tacna watersheds.</p> <p>The execution of these components will contribute to: (i) reducing the scarcity of water through proper IWRM; (ii) implementing planning and management instruments in accordance with the Water Resources Act and creating bodies to manage water access disputes; (iii) promoting a culture of water, ensuring its rational use and promoting its conservation, while increasing financing for IWRM through consistent fees for water use; (iv) improving water quality and monitoring and control mechanisms; and (v) creating resilience to the impact of climate change. Within the framework of the Water and Sanitation Initiative (document GN-2446-3), this project contributes ten watersheds to the target of the Water Defenders program.</p>			
<p>Special contractual conditions: Conditions precedent to the first disbursement: (i) the borrower, through the Ministry of Agriculture, has formed the Project Management Committee (paragraph 3.1); (ii) the borrower, through the ANA, has formed the Project Execution Unit, which has administrative and financial autonomy and is up and running (paragraph 3.4); and (iii) the Project Operations Manual is in effect as agreed in advance by the Bank (paragraph 3.6). Execution conditions: (i) no later than 31 July 2010, the deconcentrated ANA system is up and running for project execution in the three watersheds involved in the project (paragraph 3.4); (ii) no later than 31 July 2010, the watershed councils in the three project watersheds have been established and are operational, and the consulting firm that will prepare the IWRM plans has been hired, in keeping with the terms of reference approved in advance by the Bank (paragraph 3.5); (iii) no later than six months after this contract is signed or before execution of the water culture activities, whichever occurs first, ANA has updated the public relations program associated with the water culture activities, incorporating the Bank’s suggestions (paragraph 2.8); (iv) no later than 31 December 2009, ANA has signed interinstitutional participation and cooperation agreements with the National Meteorology and Hydrology Service, the Ministry of Education, and the regional governments participating in the project, specifying the responsibilities of each party in project execution (paragraph 3.3); and (v) no later than 31 December 2009, ANA has designed and implemented a project monitoring and evaluation system, as agreed in advance by the Bank (paragraph 3.13).</p>			
Exceptions to Bank policies: None			
Project consistent with country strategy: Yes [X] No []			
Project qualifies as: SEQ [X] PTI [] Sector [X] Geographic [] Headcount []			

* The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable provisions of the Bank's policy on lending rate methodology for Ordinary Capital loans. In no case will the credit fee exceed 0.75% or the inspection and supervision fee exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount divided by the number of six-month periods included in the original disbursement period.

I. DESCRIPTION AND RESULTS MONITORING

A. Frame of reference

- 1.1 **The problem addressed.** Peru has significant water resources, distributed over 159 hydrographic units of varying characteristics, with three major drainage basins: The Pacific, with 62 hydrographic units; the Atlantic, with 84 hydrographic units; and Lake Titicaca, with 13 hydrographic units. The Pacific drainage basin, characterized by its aridity, has only 1.8 % of the country's water resources, yet is home to 70% of the population, producing 80.4% of the country's GDP. In contrast, the Atlantic drainage basin has 97.7% of the water resources with a very low population density (26%), and produces 17.7 % of the country's GDP, while the Lake Titicaca drainage basin (0.5% of water resources) is very small, inhabited by one of the country's poorest populations, which in many cases is emigrating to the coast. On the coast there are approximately 800,000 ha of irrigated land, of which approximately 300,000 are compromised due to soil salinity.
- 1.2 Agriculture accounts for most of Peru's most water consumption, representing 80% (with an efficiency rate of around 35%, which is low). In order of importance, the most significant water uses: population use (12%), industry (6%), and mining sector (2%). According to the Ministry of the Economy and Finance (MEF),¹ the most dynamic growth sectors of the economy are mining, energy, export agriculture, and drinking water, all water-intensive sectors. These trends point to an increase in disputes over the use of water resources both within and between sectors. The following important considerations for Peru's water resource problem have been identified: (i) the scarcity of water concentrated on the coast, where most of the population lives; (ii) marked droughts in the south, and floods and landslides in the northern foothills; (iii) increasing migration from the countryside to the coastal cities; (iv) water quality degradation due to the discharge of untreated wastewater; (v) the limited value placed on water by the population; and (vi) cost recovery efforts do not cover the costs of operating and maintaining the water infrastructure, causing its significant deterioration.
- 1.3 In the watersheds where similar problems have been recorded, disputes have arisen over water use, which have been on the rise over the last three years, without any legal institutional support for implementing sustainable, consensus-based solutions. As a result, where there is a more representative increase in aggregate national production, there is demand for local integrated water resource management (IWRM) mechanisms and dispute resolution, providing the rationale for the design of this operation. It should be noted that, of the identified problems, the low awareness and understanding of the problems and costs associated with the supply and conservation of water for different uses have been identified as the greatest

¹ Ministry of the Economy and Finance (2006). *Crecimiento Económico, Inversiones, y Gestión del Recurso Hídrico* [Economic Growth, Investment, and Water Resource Management], National Public Investment System.

obstacles to implementing the sustainable management of water resources in the country.

- 1.4 **Legal and institutional framework.** The legal and institutional framework for water resource management was enhanced significantly through two legislative decrees (DL) in 2008. These decrees created: (i) the Ministry of the Environment (MINAM) (DL 1013 of April 2008); (ii) the National Water Authority (ANA) (DL 997 of March 2008) replacing the Water Resources Institute (IRH); and (iii) the National Water Resources System (SNRH) (DL 1081 of June 2008), which was modified by the Water Resources Act in March 2009.
- 1.5 On 31 March 2009, Peru's President enacted Law No. 29338, the Water Resources Act (LRH). The LRH created the National Water Resource Management System (SNGRH) and consolidated ANA as this system's governing authority, ensuring multisector management of water resources. ANA has a board of directors (with participation by the Ministry of Agriculture, which will assume chairmanship, the Ministry of the Environment, the Ministry of Housing, Construction, and Sanitation, the Ministry of Energy and Mines, public production sectors, public health and sanitation sectors, regional governments, elected among the regional presidents, rural municipalities, agricultural user organizations, nonagricultural user organizations, rural communities, indigenous communities, and the National Maritime Authority). ANA also has a decentralized administration through the Administrative Water Authorities (AAA), with regional scope, and the Local Water Authorities (ALA) at the watershed level.
- 1.6 In its final supplementary provisions, the LRH considers the alternative that ANA could be attached to MINAM, upon completion of this ministry's implementation and operations process. The SNGRH comprises the set of institutions, principles, standards, procedures, techniques, and instruments used by the Peruvian State to develop and ensure integrated, multisector management, sustainable use, conservation, preservation of quality, and the increase of water resources. The SNGRH is made up of: ANA, MINAM, the Ministry of Agriculture (MINAG), the Ministry of Housing, Construction, and Sanitation (VIVIENDA), the Ministry of Health (MINSA), the Ministry of Production, the Ministry of Energy and Mines (MEM), regional and local governments, user organizations, sector-based and multisector water service providers, rural and indigenous communities, and public entities associated with water resource management.
- 1.7 ANA has a nationwide presence through the regional AAAs and the ALAs at the watershed level. ANA's functions include: (i) developing the national water resource policy and strategy and the national water resource management plan, and directing, supervising, and evaluating its execution; (ii) establishing guidelines for the drafting and updating of water resource management plans for watersheds, approving them, and supervising their implementation; (iii) developing the method and determining the value of fees for water usage rights and for the discharge of wastewater in natural water sources; (iv) granting, amending, and terminating water usage rights, based on technical studies; (v) directing, organizing, and administering

- the National Water Resource Information System; (vi) establishing efficiency parameters applicable to the water resource use; (vii) approving watershed boundaries; and (viii) others indicated in the law.
- 1.8 The AAAs' functions are to direct, evaluate, and supervise execution of water resource management in their respective jurisdictions. Their territories are established by the grouping of undivided, contiguous hydrographic units, approved by the MINAG. Their primary functions are: (i) to execute policies and strategies determined by ANA; (ii) to administer water rights; (iii) to authorize studies and execution of works on natural sources of water; (iv) to supervise the operation of the public water infrastructure; (v) to undertake actions for the conservation of natural sources of water; (vi) to supervise the collection of water usage fees; (vii) to approve rates for the use of water infrastructure; (viii) to implement and maintain the inventory of public and private water infrastructure, to maintain the network of hydrological and hydrometric stations; (ix) to conduct studies and monitor natural sources of water; (x) to support the Watershed Councils in the preparation of Water Resource Management Plans in the applicable watersheds; and (xi) to participate in the development and implementation of awareness programs to create a new culture of water.
- 1.9 Within the AAAs are the ALAs, which are organizational units responsible for the administration of agricultural and nonagricultural water use in their respective areas, which is approved, at the proposal of ANA Headquarters, by Ministerial Resolution, based on one or more undivided hydrographical units, according to the methodology approved by MINAG. Their functions are limited to: (i) approving implementation, amendment, and termination of water usage rights; (ii) performing oversight and control actions; (iii) serving as the first instance for dispute resolution; (iv) supervising the collection of fees; (v) implementing, administering, and maintaining an updated inventory of users of the water infrastructure; (vi) approving and supervising the application of rates; and (vii) approving and supervising the execution of studies.
- 1.10 Despite the fact that in 2008 the legal and institutional framework for water resource management was substantially improved, ANA urgently requires institutional strengthening to consolidate its structure and meet its objectives and targets, while it also needs to respond immediately to watershed-level demands to minimize the effects of disputes over the use of scarce water resources.
- 1.11 **Lessons learned.** The operation's design took into account the lessons learned internationally, by the Bank, and by the country. This is reflected in: (i) the adoption of the IWRM model, which was well received by sector technicians, highlighting the social and economic value of water, the need for users and stakeholders to be engaged, and the need to implement the decisions in the watersheds; (ii) workshops to discuss project objectives with users and gather their input; (iii) the major role of public relations in project execution and design, primarily in the change of unsustainable attitudes; (iv) the allocation of resources to provide financial and technical support to the watershed councils until they can

operate sustainably; (v) the limited success of the Autonomous Watershed Authorities that did not receive political, financial, or technical support for their efforts; (vi) the development of water resource management plans based on the watersheds' environmental and sociocultural capital; and (vii) the development of specific management instruments, such as the water resources information system, financial instruments to finance management, and the establishment of water quality and quantity monitoring networks.

- 1.12 **Project rationale and Bank participation.** In this context, the Bank has been supporting the Peruvian government with the consolidation of the institutional and legal framework in the implementation and promotion of integrated water resource management, by adopting a participatory approach based on sustainability and equity. This support will be consolidated with the implementation of integrated water resource management systems in three priority coastal watersheds (Chira-Piura, Santa, and Tacna), selected on the basis of their socioeconomic importance, the number of disputes, the level of maturity in terms of multisector management, and their geographic environment (in the Pacific drainage basin, including representation of the three ecosystems, northern, central, and southern). The implementation of management plans in three pilot watersheds is a commitment of the water resources reform program (PE-L1024 and PE-L1040), which the Bank is financing in Peru, with the ultimate objective of implementing the national agreements set forth in the Estrategia Nacional de Gestión Recursos Hídricos [National Strategy for Integrated Water Resource Management] (ENGRH). Loan PE-L1024 was approved and disbursed in 2007. The second tranche, PE-L1040, is in preparation, with approval and disbursement anticipated in 2009; a third tranche will be approved in 2010 (PE-L1050). To complement this effort, the Bank approved five nonreimbursable technical-cooperation projects to implement pilot projects for managing water availability (Maschon/Chonta PE-T1057), integrated management of water supply sources for Lima (PE-T1112), regularization of water rights in small communities (PE-T1151), determination of the economic value of water (PE-T1206), and preparation of the national water resources plan (PE-T1180). The latter two fit in with the sector reform program commitments.
- 1.13 The Bank has defined a IWRM strategy that assists countries with: (i) water conservation through the more efficient allocation of water resources, based on social equity; (ii) the resolution of disputes between competing uses and users, including environmental uses; (iii) the determination of social, economic, and environmental value of water in sustainable development; and (iv) increased community and private sector participation in decision-making and financing (document GN-1908-4). The Bank's program in the water sector also supports fulfillment of the various objectives of the pillars of the Bank's strategy with Peru (document GN-2472-2) by providing inputs and basic infrastructure for improving the country's competitiveness, enhancing the delivery of an essential good for the poorest segments of the population, and modernizing the institutional framework for decentralized resource management. It also serves the needs of conservation and sustainable management of natural resources. This operation fits perfectly into the

Bank's program with the country to develop integrated water resource management plans (PGIRH) at the watershed level, implement watershed councils and improve the network of hydro-meteorological and water quality stations. These actions will strengthen decentralization and the institutions concerned, while creating instruments to guarantee the conservation of significant ecosystems and the sustainability of water resources, which are essential increased country competitiveness and poverty reduction. The project also contributes ten watersheds to the Water Defenders program under the Bank's Water and Sanitation Initiative (document GN-2446-3).

- 1.14 Peru's strategy to address the demands for local water resource management systems involves the participation of the IDB and the World Bank in two simultaneous and similar loans, each in an amount of US\$10 million, targeting six coastal watersheds. The World Bank project will be implemented in the watersheds of Chancay-Lambayeque, Ica, and Chili, and is in its final preparation phase with negotiations held on 3 April and board consideration in July 2009. ANA, in collaboration with the World Bank, has been working for three years on the preparation of this operation and the documents produced were analyzed by the team and are the basis of the IDB operation. The IDB team has been coordinating with the World Bank in Washington and has participated in joint missions to Peru. With the execution of the pilot projects in the six watersheds, ANA will have sufficient information to extend the experience to the rest of the country's watersheds. An execution system, including joint missions with the two Banks, has been agreed upon with the Ministry of the Economy and Finance.

B. Objective, expected outcomes, components, and cost

- 1.15 The project's general objective is to contribute to the efficient use of water resources and related ecosystems in Peru by adopting a participatory approach based on sustainability and equity; and its purpose is to implement water resource management plans and instruments in the Chira-Piura, Santa, and Tacna watersheds.
- 1.16 The specific objective is to improve water resources management at the national level and in selected watersheds, which is reflected in two components: (i) improving national IWRM capacity; and (ii) improving IWRM in the Chira-Piura, Santa, and Tacna watersheds. The execution of these components will help: (i) reduce the scarcity of water through proper IWRM; (ii) implement planning and management instruments in accordance with the LRH and create bodies to manage water access disputes; (iii) promote a culture of water, ensuring its rational use, and promoting its conservation, while increasing financing for IWRM through uniform fees for water use; (iv) improve water quality and monitoring and control mechanisms; and (v) adapt to the impact of climate change.
- 1.17 **Component I. Improving national IWRM capacity (US\$1.8 million).** This component will complement the World Bank's strengthening of the ANA at the central level so it can implement IWRM for watersheds while adopting concepts of

equity, sustainability, and participation. This World Bank support will be concentrated on training, design, and implementation of the national water resource information system (SNIRH), design of the action targeting the culture of water, and financing of the Project Execution Unit (PEU). To achieve the development objectives envisaged, the IDB will focus its support on the financing of: (i) three professionals (water resources, procurement, and a financial accountant) on the team that will make up the PEU, which includes an executive director, four technical professionals to execute the IWRM activities, and four fiduciary or administrative accounting professionals (the World Bank and ANA will finance the PEU's remaining costs); (ii) the national water resource central information system and the implementation of the system's nodes in the three watersheds, the necessary consulting and training so that Servicio Nacional de Meteorología e Hidrología [National Meteorology and Hydrology Service] (SENAMHI) and ANA officials can operate it; the design of the system (purchase of equipment and software will be financed by the World Bank); and (iii) creation of a culture of water through the financing of training and public relations programs inside and outside ANA to change attitudes related to inefficient water use. This activity, using IDB resources, would train about 30 relevant decision-makers in the three watersheds and work with different user organizations to achieve the project's objectives.

- 1.18 **Component II. Improving IWRM in selected watersheds (US\$17.7 million).** This component would implement IWRM in the Chira-Piura, Santa, and Tacna watersheds. The financing will be used to: (i) implement the AAAs, ALAs, Watershed Councils (CC), and the respective executive technical group; (ii) develop an operations, planning and budget manual for these institutions and purchase software, equipment, and furniture for their operation; (iii) hire staff and consultants to support operations, whose financing will be scaled down from 90% to 0% by the end of year four; (iv) engage a consulting firm to develop participatory IWRM plans for the three watersheds to be agreed upon by consensus by CCs, ALAs, and the executive technical group supporting the CCs, validated by the AAAs, and approved by ANA's Management Committee; (v) consolidate the hydro-meteorological, water quality, and liquid waste monitoring network in the three watersheds, including the purchase of equipment, execution of monitoring, and development of water quality and hydrological models; (vi) design and implement the water culture program in the three watersheds; and (vii) finance emergency interventions at the request of users.
- 1.19 The results expected with the Bank's support are concentrated in the three selected watersheds, and include: (i) implementation and strengthening of ANA, the AAAs, ALAs, CCs, and their executive technical teams, with the hiring of specialists, consulting firms, and teams; (ii) implementation of the nodes of the water resource information system (quality and quantity) and strengthening of SENAMHI; (iii) implementation of hydro-meteorological and water quality stations in each watershed; (iv) a water quality, liquid waste, and flow monitoring system; (v) the preparation, approval, and execution of a public relations strategy for ANA in view of the institution's crosscutting nature, the domestic audience, and the interventions;

and (vi) the implementation of participatory water resource management plans that consider priority short-, medium-, and long-term actions.

C. Costs and financing

- 1.20 The project's total cost is US\$19,579,000, of which US\$10 million will be financed with resources from the Bank's Ordinary Capital, and US\$9,579,000 with counterpart funding from the Peruvian government. A breakdown by investment and source of financing is presented in figure 1.1.

Figure 1.1: Project Cost Table²

COMPONENTS / ACTIVITIES		TOTAL PROGRAM		Source (US\$ 000)		Source (US\$ 000)	
		US\$ 000	%	IDB	%	PERU	%
I	Improving national IWRM capacity	1,808	9.24%	524	2.68%	1,284	6.56%
1.1	I.1 Supporting institutional reform for IWRM	284	1.45%	38	0.19%	247	1.26%
1.2	Designing and implementing the National Water Resources Information Center (CNIRH)	944	4.82%	191	0.98%	752	3.84%
1.3	I.4 Culture of water (Nat., Reg. Gov., SENAMHI)	503	2.57%	295	1.51%	207	1.06%
1.4	1.5 Contingencies	78	0.40%	0	0.00%	78	0.40%
II	II. Improving IWRM in selected watersheds	17,591	89.85%	9,296	47.48%	8,295	42.37%
2.1	II.1 Implementing IWRM in 3 pilot watersheds	17,591	89.85%	9,296	47.48%	8,295	42.37%
III	Monitoring and evaluation	180	0.92%	180	0.92%	0	0.00%
3.1	Baseline	20	0.10%	20	0.10%	0	0.00%
3.2	Midterm and final evaluations	80	0.41%	80	0.41%	0	0.00%
3.3	External audit	80	0.41%	80	0.41%	0	0.00%
	TOTAL US\$	19,579	100.00%	10,000	51.07%	9,579	48.93%

D. Key indicators in the results framework

- 1.21 The primary specific indicators expected with implementation of the project are summarized below and discussed in greater detail in the Results Framework in Annex II.

Figure 1.2: Results Framework, key indicators

Expected results	Indicator	
	Baseline	End of project
Water use efficiency improved in all three watersheds, %	Irrigation system losses: 65%	Irrigation system losses: 60%
Increased fee collection in all three watersheds, US\$/m ³	US\$0.00030	US\$0.00045
Reduction in number of water use disputes	20	10
Three IWRM plans approved by the CCs in all three watersheds.	0	3

² Activities not shown here are included in the World Bank's financing.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 The proposed loan, with resources in United States dollars from the Single Currency Facility of the Bank's Ordinary Capital, will be governed by the Operational Framework for Lending in Local Currency (documents GN-2365-12 and GN-2365-6). The following conditions will also apply: (i) an interest rate based on the LIBOR; (ii) an amortization period of 25 years; (iii) a five-year disbursement period; and (iv) a five-year grace period. Once the loan proceeds have been fully disbursed, the outstanding balance can be administered under loan 1915/OC-PE-1, to streamline administration and have uniform maturity dates for the semiannual payments. The borrower is the Government of Peru and the project executing agency will be ANA, through the Project Execution Unit (PEU). Part of the local counterpart resources will be contributed by ANA from its budgetary resources. Expenses incurred since 2 April 2009 and during a period of 18 months prior to approval of the loan by the Board of Executive Directors will be recognized to a maximum of US\$100,000 respectively (US\$200,000 in total), chargeable against the counterpart funding and the loan resources, provided such expenses are planned and satisfy the requirements of the Bank's procurement policies. The ANA must present to the Bank documentation in support of such expenses. Expenses incurred between the date the operation is approved and the date of contract signature may be recognized, if they meet the conditions aforesaid.

B. Environmental and social safeguard risks

- 2.2 The Environmental and Social Impact Review Secretariat (ESR) analyzed the operation's profile (meeting 10-09) and requested the inclusion of a social analysis in the terms of reference (TOR) for preparation of the IWRM plans for the watersheds. It also requested the study of a strategy to incorporate cross-border consultations on the watersheds where applicable. The TOR were sent directly to the ESR, which incorporated its comments.
- 2.3 As part of project preparation, three workshops were held (one in each watershed) and social studies were commissioned at the same level as those undertaken by the World Bank in the Chira-Piura, Santa, and Tacna watersheds, for use in developing the IWRM plans. The results of these social studies and workshops point to an unsatisfactory culture of water as being responsible for most of the problems and disputes identified in the watersheds, and show significant local willingness to help implement IWRM in the three watersheds. The results of the workshops and study were incorporated into the TOR for the IWRM plans.
- 2.4 The World Bank environmental report and the TORs for the environmental and social studies to be undertaken as part of the IWRM plans were adapted to IDB policies. This report and the TORs are annexed to this project (Link). Moreover, considering that the project's actions aim at institutional strengthening, development, and implementation of water resource management instruments in the

three abovementioned watersheds, the environmental and social risks are low. Given its nature, the project will not generate any negative environmental or social impacts. To the contrary, significant positive environmental and social impacts are expected with the implementation of participatory water resource management systems in the watersheds, the resulting reduction in water wastage, primarily in agriculture, where losses of 65% are reported. By reducing water loss, a greater number of farmers will have access to water, expanding social benefits. Also, international experience shows that the implementation of participatory IWRM plans contributes to dispute management, improves water quality and environmental conditions through preventive actions, adaptation to climate change, control, and monitoring.

C. Other key issues and risks

- 2.5 **Fiduciary and institutional risks.** The evaluation of fiduciary risk and the results of applying the ICAS methodology indicate that ANA poses a high risk in the following areas: (i) ANA's technical units have different levels of hierarchical supervision, which may cause coordination problems with the PEU; (ii) the PEU team will be financed with World Bank resources, which calls for simultaneous execution in order to prevent the World Bank project from ending before the IDB one does, thus leaving the PEU unfunded; (iii) efforts must be coordinated closely with the World Bank in order to prevent execution problems; (iv) the PEU does not yet have a monitoring system; and (v) the recently created ANA has little experience with Bank procurement and financial management processes.
- 2.6 The strategy for mitigating these risks includes: (i) the team that has designed the project with both Banks will continue supporting the PEU and ANA in order to facilitate coordination with the technical units, until they are strengthened with project resources; a Project Operations Manual (POM) clearly describing the functions and actions of the PEU, prepared and agreed upon by both Banks, will also be used (paragraph 3.6); (ii) the MEF and the Bank are working to ensure that execution of the two projects is properly synchronized. Should the World Bank project end first, ANA would already have resources from water usage fees to finance the PEU for the necessary period; (iii) at the request of the MEF, coordination will be established between the two Banks so they can jointly evaluate the selection and procurement processes for the two projects; (iv) the MINAG has a monitoring system which would incorporate the system being developed by the project. Also, by 30 June 2010, the PEU will have to have implemented a monitoring system to both Banks' satisfaction; and (v) the Bank's team in Peru has already trained ANA officials on the Bank's procurement and financial management procedures and will continue these efforts during execution, extending them to the PEU professionals. Procurement will also be reviewed *ex ante* in accordance with the procurement plan (paragraph 3.9).
- 2.7 In addition, considering that in two years there will be regional and local government elections, there may be a significant slowdown in the pace of execution if there are staff changes at these levels of government. The formation of a PEU

- with trained professionals, duly connected to the Project Management Committee (PMC) (paragraph 3.1), with the Banks' no objection and a healthy pace of execution in the first two years are expected to be sufficient to mitigate this risk.
- 2.8 **Water culture.** The results of the sector studies conducted to prepare the ENGRH and the results of the workshops held as part of project preparation indicate that the current culture, in which most users place a low value on water resources, is responsible for the inefficiencies and wastage verified in the agricultural (estimated efficiency of 35%) and nonagricultural sectors. The Bank has analyzed the public relations program developed for the project, the communication needs of ANA as an institution, and the communication work plan developed for ANA. In all three cases, recommendations were made to mitigate risks in this area that would compromise the operation's objectives. Considering that the project, as presented, has been deemed viable by the National Public Investment System (SNIP) in terms of feasibility, to avoid delays in the preparation and approval of the operation, any change will be easier to incorporate during execution. Therefore, **no later than six months after the contract is signed or before execution of the water culture activities, whichever occurs first, ANA must update the public relations program associated with the water culture activities, incorporating the Bank's suggestions.**
- 2.9 **Socioeconomic viability.** The economic evaluation of the Water Resource Management Modernization Project (PMGRH) was based on the cost-benefit analysis methodology, which, in turn, focused on economic efficiency. The calculation of the economic benefits is based on an improvement of the efficiency in water distribution. In particular, taking the case of agriculture as the use representing the greatest consumption of water, greater availability of water, coupled with management that distributes its more efficiently, will increase the amount of irrigated agricultural land. With the increase of irrigated hectares, agricultural production will also increase, making it possible to approximate the benefit of the greater availability of water through the net benefit of this production increase (increase in producer surplus). There are other elements that would represent greater project benefits, for example, the greater availability of resources could translate into greater coverage of water service to the population, as well as greater power generation in existing hydroelectric power plants. Nevertheless, at the time of the evaluation, pertinent information was not available to include these benefits. During project execution, this information will be collected for use in any ex post evaluation. This category also includes environmental benefits that could be generated through project actions, but are difficult to measure. For this reason, it has been assumed that any savings in water resource use will benefit agricultural purposes.
- 2.10 The analysis found that the project as a whole is viable, with an internal rate of return (IRR) of 29%. However, in evaluating each watershed, it was found that small watersheds would not be economically viable, since the economies of scale are lost by the need for an institutional structure similar to those in watersheds that

obtain benefits that are 10 times greater. It should be noted that some significant environmental and social benefits were not considered due to lack of information. The results are presented in Figure 2.1.

Figure 2.1: Results of the Economic Evaluation

Watershed	Water Used (MMC/year)	Net Present Value (thousands of Soles)	Internal Rate of Return (%)
Chira-Piura	1,139.7	9,045	33
Santa	1,864.8	23,730	64
Tacna	134.1	-11,322	<10
Project	3,138.6	21,453	29

- 2.11 **Social equity, poverty reduction, and distributive impact.** This operation qualifies as a social equity-enhancing project, as described in the indicative targets mandated by the Bank's Eighth Replenishment (document AB-1704). This operation does not qualify as a poverty targeted investment (PTI).

III. IMPLEMENTATION AND MANAGEMENT PLAN

- 3.1 **Borrower, executing agency, and guarantor.** The borrower will be the Republic of Peru; the executing agency will be ANA through the PEU, duly established according to Law 28411 of 8 December 2004. The PEU will be financed with resources from the World Bank, the IDB, and the Peruvian government, and will have administrative and financial autonomy. Its technical team includes an Executive Director, who reports to ANA's director, three technical coordinators, a legal counsel, two fiduciary specialists, and an administrative and financial support team. A Project Management Committee (PMC) will be established to provide high-level guidance, monitoring, and control of execution, and made up of the MINAG or its representative, who will chair the committee, the Director of ANA, one MEF representative, one MINAM representative, one representative of the regional governments participating in the project, one local government representative, one representative of agricultural users, and one representative of nonagricultural users from the watersheds. The functions of the PMC are described in the Project Operations Manual (POM). The PEU's Executive Director will act as technical secretary of the PMC. **As a condition precedent to the first disbursement, the borrower, through MINAG, must have established the PMC.**
- 3.2 The PEU will be responsible for fulfillment of the functions related to the technical, administrative, and financial procedures associated with loan execution, as well as project monitoring and evaluation. Its specific functions include: (i) planning of loan execution and annual work plans (AWP); (ii) preparation and updating of procurement plans; (iii) review of bidding documents for the procurement of goods and consulting services, ensuring that they comply with Bank procurement policies; (iv) monitoring the progress of consulting contracts and goods procurement; (v) preparation and processing of payments; (vi) preparation of financial statements

- and disbursement requests; and (vii) monitoring and evaluation of project execution. All financial resources will be reviewed for the PEU, which will execute the activities linked to the participating institutions, in coordination with them.
- 3.3 It should be noted that SENAMHI (a department of MINAM) will be responsible for consolidating meteorological and hydrological monitoring networks in the three watersheds and providing the technical data for input into the SNIRH; (ii) the Ministry of Education (MINEDU) will provide the information to design the courses promoting a new culture of water in formal educational settings; and (iii) the regional governments, as members of the CCs, will participate in developing and financing the IWRM plans, as well as the financing strategy at the watershed level. **No later than 31 December 2009, ANA must have signed interinstitutional agreements with the regional government, the National Meteorology and Hydrology Service, and the Ministry of Education, specifying the responsibilities of each party in project execution.**
- 3.4 **Execution system.** The PEU, in coordination with ANA, will establish and train the AAAs, ALAs, Watershed Councils (CCs), and their executive technical groups. Once these institutions are set up with their missions and functions, according to the mandates in the LRH, the PEU will use their support to carry out the remaining project activities, which will become the final training process. The AAAs will provide the onsite technical support for execution of some necessary activities and supervision of the contracted actions, including the consulting firm hired to develop the IWRM plans in the three watersheds. Watershed Councils will be responsible primarily for participating in the development, validation, and implementation of the IWRM plan. The CCs will include representatives of the involved institutions and water resource users. An executive technical group will be part of each watershed's ALA to provide support to the respective CCs on the approval and execution of the projects included within the IWRM plan, which will be duly agreed upon by consensus among the various users. The SENAMHI regional offices and the Regional Governments' Special Environmental Health Departments (DESAS) will also take part in this system. SENAMHI will be responsible for the operation of the SNIRH nodes to be set up in their offices, and for the implementation of the "hydrological-meteorological monitoring networks." The DESAS will be responsible for the implementation and operation of the water quality networks and providing the information obtained to the SNIRH. The technical teams of the AAAs, ALAs (executive technical group), and CCs will be financed with decreasing loan proceeds over four years (90%, 65%, 35%, and 10%). At the end of the four years, project support will be withdrawn and these institutions will be financed with resources from the water usage fees and the ANA budget. **As a condition precedent to the first disbursement, the borrower, through the ANA, must have formed the Project Execution Unit with administrative and financial autonomy, and it must be up and running . The deconcentrated ANA system for project execution must be duly implemented by 31 July 2010.**

- 3.5 The critical path of project execution includes the establishment of the PEU, the establishment of the CCs, and the hiring of the consulting firm to prepare the IWRM plans. **To prevent delays in execution and compliance with project objectives, the CCs must be up and running and the consulting firm preparing the IWRM plans in the three watersheds must be hired by 31 July 2010.**
- 3.6 **Project Operations Manual:** A draft POM was prepared containing the instructions, guidelines, and standards for the organization, management, and implementation of the project (Link). **As a condition precedent to the first disbursement, the Project Operations Manual must be in effect as agreed in advance by the Bank.**
- 3.7 **Project readiness.** The project has undergone a feasibility study and been determined viable by the National Public Investment System (SNIP) and complementary studies conducted by the IDB and the World Bank. These studies include: (i) environmental and social studies; (ii) an economic assessment; (iii) the Project Operations Manual; and (iv) the respective terms of reference for engaging the consulting firms, including the IWRM plans in the three watersheds and their respective environmental and social studies (Link).
- 3.8 **Disbursement schedule.** Disbursements will be made under the Operational Framework for Lending in Local Currency (documents GN-2365-12 and GN-2365-6). The estimated disbursement schedule is presented in Figure 3-1.

Figure 3.1: Disbursement schedule

SOURCE	TOTAL	1	2	3	4	5
IDB	10,000,000	342,150	4,172,168	3,772,462	1,291,950	421,260
Counterpart	9,579,303	200,532	2,478,392	2,339,755	2,262,732	2,297,892
TOTAL	19,579,303	542,682	6,650,560	6,112,217	3,554,692	2,719,152
Percentages	100.0%	2.8	34.0	31.2	18.2	13.8

- 3.9 **Procurement.** The procurement of goods, works, and consulting services for the project will be carried out in accordance with Bank policies (documents GN-2349-7 and GN-2350-7 of July 2006). For this reason ANA has been engaged and the PEU set up. Both will continue to receive training from the Bank in order to prevent possible delays. Procurement will be reviewed ex ante (See Annex II, procurement plan).
- 3.10 **Revolving fund.** For project disbursements, a revolving fund will be established, in accordance with Bank procedures, equivalent to 5% of the total loan amount. The PEU will control the use of funds, prepare disbursement requests on behalf of the borrower, and submit status reports on the use of resources to the Bank, within 60 days following the close of each six-month calendar period.
- 3.11 **Operation and maintenance.** The hydro-meteorological monitoring stations and the equipment purchased with project resources will be operated and maintained by SENAMHI for four years after the last disbursement. SENAMHI has the technical

- staff and the means necessary for proper operation and maintenance of this equipment during and after the execution period.
- 3.12 **External audit.** During execution, the PEU will submit the project's audited annual financial statements. The external audit will be performed by independent auditors acceptable to the Bank, in accordance with Bank requirements (AF-100, AF-200, and AF-300), and based on terms of reference previously approved by the Bank (AF-400). The costs of the audit will be financed with loan resources.
- 3.13 **Monitoring and evaluation.** The PEU will submit semiannual progress reports to the Bank, indicating the achievements of each component and overall project performance, based on the indicators in the Results Framework. The borrower will also submit a midterm evaluation prepared by an independent consulting firm within 90 days after 50% of project resources have been disbursed, or 36 months after contract signature, whichever occurs first. A final project evaluation will be carried out by an independent consultant within 90 days after 90% of project resources have been disbursed, including: (i) the results of financial execution by component; (ii) fulfillment of established targets, in accordance with the agreed outcomes indicators; and (iii) fulfillment of contractual conditions. **No later than 31 December 2009, ANA must have designed and implemented a project execution monitoring and evaluation system, as agreed in advance by the Bank.**
- 3.14 **Coordination mechanisms between the World Bank, the IDB, and ANA during project execution.** The World Bank and the IDB will undertake joint supervision missions every six months, in order to share experiences, coordinate planning, and take applicable contingency measures since they are financing jointly a single project. Both Banks will adopt the same method of operations and monitoring system, and all CVs and TORs must be approved by both Banks.

**Development Effectiveness Matrix
Summary**

Criterion	Score
Section 1. IDB Strategic Development Objectives – Area Rating	5.3
Country Diversification	0.7
Corporate Initiatives	2.5
Harmonization and Alignment	1.1
Beneficiary Target Population	1.0
Section 2. Country Strategy Development Objectives – Area Rating	9.0
Country Strategy Sector Diagnosis	5.4
Country Strategy sector objective and indicator	3.6
Section 3. Program Logic – Area Rating	9.2
Program Diagnosis	3.0
Proposed Solutions (@ PP)	1.3
Proposed Solutions (@ POD)	2.0
Results Matrix Quality	2.9
Section 4. Evaluation & Monitoring – Area Rating	2.7
I. Evaluation	0.7
II. Monitoring	2.0
Section 5. Economic Performance – Area Rating	10.0
Economic Rate of Return	10.0
Cost-effectiveness	0.0
Section 6. Risk Management – Area Rating	7.5
Environmental & social risk classification	C
Environmental & social risk policy compliance	
Risk Matrix Score	5.0
Mitigation Matrix Score	2.5
Section 7. Additionality- Area Rating	6.7

**WATER RESOURCE MANAGEMENT MODERNIZATION PROGRAM
(PE-L1070)**

RESULTS FRAMEWORK

Program Objectives
The program's general objective is to contribute to the efficient use of water resources and related ecosystems in Peru by adopting a participatory approach based on sustainability and equity.
The program's purpose is to implement water resource management plans and instruments in the Chira-Piura, Santa, and Tacna watersheds.

Results	Baseline 2009	2012	Final target	Observations/ Means of verification
Water use efficiency improved in all three watersheds, %	35	38	40	PEU/ANA reports
Increased fee collection in all three watersheds, US\$/m ³	0.00030	0.00039	0.00045	PEU/ANA reports
Reduction in number of water use disputes, No.	20	16	10	PEU/ANA reports
Three IWRM plans approved by the CCs in all three watersheds	0	2	3	PEU/ANA reports

Component	Baseline	Year 1	Year 2	Year 3	Final target	Observations /
1. Improving national IWRM capacity						
a. ALAs, AAAs, and Executive Technical Committees are implemented and operating in offices provided by ANA, %.	0 (30 April 2009)	0	70	100	100	PEU/ANA reports
b. National Water Resource Information System nodes are implemented and operating, providing timely, reliable information, No.	0 (30 April 2009)	0	2	3	3	PEU/ANA reports
c. The central culture of water program undertakes training activities with ANA officials, %.	0 (30 April 2009)	Update of identified needs	55	100	100	PEU/ANA reports

Component	Baseline	Year 1	Year 2	Year 3	Final target	Observations/Mean of verification
2. Improving IWRM in selected watersheds						
a. Watershed Councils are implemented and operating.	0 (30 April 2009)	0	1	2	3	PEU/ANA reports
b. Water quality stations are implemented and operating, providing timely, reliable information.	0 (30 April 2009)	20	40	40	40	Exact number of stations will be updated in the first year
c. The culture of water program has educational activities, mass media communications, and workshops designed in consultation with the population of the three watersheds in operation.	0 (30 April 2009)	Design completed and updated	1 watershed	2 watersheds	3 watersheds	PEU/ANA reports
d. Three Integrated Water Resource Management plans are prepared and agreed upon with users and the population.	0 30 April 2009	0	0	3	3	PEU/ANA reports

WATER RESOURCE MANAGEMENT MODERNIZATION PROGRAM (PMGRH) (PE-L1070)

ANNUAL PROCUREMENT PLAN

Period covered by this Procurement Plan: 5 years

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	YEAR 1									
	GOODS									
	Transport vehicle II (2)	64,000	NCB	YES	64,000	0	NO			
	Computer equipment (printers, computers, scanners, switches, and plotters)	27,260	PC	YES	27,260	0	NO			
	Desks, chairs, tables, and file cabinets	2,270	PC	NO	2,270	0	NO			
	Work stations	7,200	PC	NO	7,200	0	NO			
	Photocopier	4,000	PC	NO	4,000	0	NO			
	NONCONSULTING SERVICES									
	Assistant accountant for 5 years	90,000		N/A	0	90,000				
	Secretary, for 5 years	60,000		N/A	0	60,000				
	Structured wiring	4,000	PC	NO	4,000	0	NO			
	Technical study for location of hydro-meteorological stations in pilot watersheds (field inspection), 1 person for each watershed	19,500	PC	NO	19,500	0	NO			
	CONSULTING SERVICES									
	Baseline, for 1 year	20,000	CQS	YES	20,000	0	NO			
	External audit, for all 5 years	80,000	QCBS	YES	80,000	0	NO			
	a) Manuals: operations, organization, and functions; preparation of activities plan; administrative-accounting software, and instructions	80,000		N/A		80,000				
	Study of IWRM financing mechanism in watersheds, for 1 year	60,000	CQS	NO	60,000	0	NO			
	a) Evaluations, for 1 year	20,000	CQS	NO	20,000	0	NO			
	b) Developing participatory IWRM plans for 3 watersheds for 3 years	450,000	QCBS	YES	450,000	0	NO			
	TOTAL YEAR 1	988,230			758,230	230,000				

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	YEAR 2									
	GOODS									
	Operating systems, office software	9,600	PC	NO	9,600	0	NO			
	Development software for SIG applications (extensions), communications (domain security software) and web (web publication utilities, graphic design software)	4,425	PC	NO	4,425	0	NO			
	Security suite (for 6 stations x 3 years), security operating systems, network security software, security suite (2 nodes and stations)	19,275	PC	NO	19,275	0	NO			
	Network printers, computers (46), switches	145,682	NCB	YES	145,682	0	NO			
	Photocopiers	16,000	PC	NO	16,000	0	NO			
	Tower server, self-cooling rack, UPS, tape library, console, security station, communications switches	78,600	NCB	NO	78,600	0	NO			
	Database (3)	15,000	PC	NO	15,000	0	NO			
	Transport vehicle II (4)	384,000	ICB	YES	384,000	0	NO			
	Desks (25), chairs (25), meeting table, and chairs (10)	14,700		N/A	0	14,700				
	Furniture and fittings, 3 teams	3,000	PC	NO	3,000	0	NO			
	Conventional hydrometric station (installation + civil works + spare parts) - 12	165,600	NCB	YES	165,600	0	NO			
	Automatic hydrometric station (installation + civil infrastructure) 12	300,000	ICB	YES	300,000	0	NO			
	Spare parts kit for hydrometric stations (sensors, data logger, panel, battery) 6	78,900	NCB	NO	78,900	0	NO			
	Automatic meteorological station - 24	408,000	ICB	YES	408,000	0	NO			
	Spare parts kit for meteorological stations (sensors, data logger, panel, battery) 12	237,000	ICB	YES	237,000	0	NO			
	Current meters 6 (for 3 years)	270,000	NCB	YES	270,000	0	NO			
	Rack-mounted administration server, 8 processors with SAS storage and fiberoptic communication - 3. High-performance work station with 4 processors, dual graphics card, 4 GB of memory 1 TB 21" LCD monitor. Rack with integrated fiberoptic electrical support and ventilation	155,250	NCB	YES	155,250	0	NO			
	Local interconnection hardware and accessories (LAN) - 3	4,641	PC	NO	4,641	0	NO			
	Electrical protection system for regional LAN (equipment, accessories, and installation) - 3	10,710	PC	NO	10,710	0	NO			

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	NONCONSULTING SERVICES									
	Driver, for 4 years	28,800		N/A	0	28,800				
	Technician for transferring data to digital format for 1 year, 3 people at US\$1,200 per month. Central station	43,200		N/A	0	43,200				
	Digital data assistants for 1 year, 3 people at US\$800 per month. Central station	28,800		N/A	0	28,800				
	Administrative assistant, 3 assistants for watersheds, for 4 years at US\$1,000 per month	432,000		N/A	0	432,000				
	Secretary, for watersheds for 4 years, 1 person at US\$900 per month	129,600		N/A	0	129,600				
	Administrative support staff for watersheds, for 4 years, 2 people at US\$850 per month	244,800		N/A	0	244,800				
	Technician for watersheds, for 4 years, 2 people at US\$600 per month	172,800		N/A	0	172,800				
	f) Workshops for plans, 9 workshops in 1 year	47,700	DC	NO	47,700	0	NO			
	Overhaul of conventional hydrometric station (installation + civil works + spare parts), 15 stations in 2 years.	255,000	PC	NO	255,000	0	NO			
	Outfitting of facility for hydrometric stations	30,000		N/A	0	30,000				
	Ground well in regional control modules	1,785	PC	NO	1,785	0	NO			
	Development of human capacity of hydrometric operators and technicians for watersheds	38,000		N/A	0	38,000				
	i) Capacity-building in the pilot watershed and development of awareness plans (technical assistance for 1 year)	750,000		N/A	0	750,000				

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	CONSULTING SERVICES									
	TV and radio for campaigns, for 1 year	265,000	QCBS	YES	265,000	0	NO			
	Press	36,000		N/A		36,000				
	Printed materials (including layout and publishing)	30,000		N/A		30,000				
	c) Models (hydrological, distribution, and management), for 3 years	600,000	QCBS	YES	600,000	0	NO			
	d) Developing operations and maintenance plans for the main water network and dam safety plans for 1 watershed	150,000	QCBS	YES	150,000	0	NO			
	Consulting to coordinate the Integrated Water Resource Management Plan for the pilot watersheds (3 watersheds for 4 years); 1 consultant per watershed at US\$3,000 per month (open call, long list)	432,000	IC	YES	432,000	0	NO			
	Consulting for the water resource management program in the watershed, culture of water program, implementation of the water resource system and support body (for 3 watersheds); 4 consultants per watershed at US\$2,500 per month for 4 years (open call, long list)	1,440,000	IC	YES	1,080,000	360,000	NO			
	Consulting on the operation and maintenance plan for information, studies, environmental and social considerations, supervision of water resource studies and projects (for 3 watersheds); 3 consultants per watershed at US\$2,500 per month for 4 years (open call, long list)	1,080,000	IC	YES	540,000	540,000	NO			
	Consulting on culture of water, information system (system operators), operation and maintenance, studies and projects, and environmental management (for 3 watersheds); 9 consultants per watershed at US\$1,800 per month for 4 years	2,332,800		N/A	0	2,332,800				
	IWRM specialist (1 consultant for 2 years, for Santa AAA)	72,000	IC	YES	72,000	0	NO			
	Human resources administration specialist - Santa AAA	72,000	IC	NO	72,000	0	NO			
	Quality management specialist - Santa AAA	72,000	IC	YES	72,000	0	NO			
	Hydrologist for water quality measurement	9,000	IC	NO	9,000	0	NO			
	Water quality assistant	3,000	IC	NO	3,000	0	NO			
	Designer specialized in water quality (2 consultants for 8 months at US\$3,000 each)	48,000	IC	NO	48,000	0	NO			
	TOTAL YEAR 2	11,164,668			5,953,168	5,211,500				

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	YEAR 3									
	GOODS									
	Operating systems (for 6 work stations) and office software	1,200	PC	NO	1,200	0	NO			
	Development software for SIG applications (extensions), communications (domain security software) and web (web publication utilities, graphic design software)	4,425	PC	NO	4,425	0	NO			
	Security suite (for 6 stations x 3 years)	375	PC	NO	375	0	NO			
	Conventional hydrometric station (installation + civil works + spare parts)	150,000	NCB	NO	150,000	0	NO			
	Automatic hydrometric station (installation + civil infrastructure)	168,000	NCB	NO	168,000	0	NO			
	Automatic meteorological station	300,000	ICB	YES	300,000	0	NO			
	Implementation of 20 pilot stations (equipment and 20 posts per watershed)	100,000	NCB	NO	100,000	0	NO			
	Limnimeter	24,000		N/A	0	24,000				
	To monitor dumping: glass and plastic 1-liter flasks (250 per year/watershed), BOD flask (250), coolers, reagents, monitoring material.	52,240	NCB	NO	52,240	0	NO			
	Transport vehicle II	64,000	NCB	NO	64,000	0	NO			
	Computer (3) and printers (3)	5,700	PC	NO	5,700	0	NO			
	Desk, chairs, and file cabinets	1,680	PC	NO	1,680	0	NO			
	NONCONSULTING SERVICES									
	Technician for transferring data to digital format, pilot watershed nodes, for 2 years, 3 people at US\$1,000 per month each	144,000		N/A	0	144,000				
	Technical and administrative support staff, pilot watershed nodes, for 2 years 3 people at US\$500 per month each	72,000		N/A	0	72,000				
	f) Workshops for plans, 9 workshops in 1 year	47,700	DC	NO	47,700	0	NO			
	Capacity infrastructure for hydrometric stations	84,000	PC	NO	84,000	0	NO			
	Electrical adaptation (infrastructure and materials), regional control modules	5,355		N/A	0	5,355				
	Internet services for 3 points, for regional modules for 3 years, considering satellite connection	43,200	PC	NO	43,200	0	NO			
	Technicians on systems for regional control modules, 3 people for 3 years at US\$1,000 per month	108,000		N/A	0	108,000				

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	Hydrological surveyors for control modules, 3 people for 3 years at US\$1,000 per month	108,000		N/A	0	108,000				
	Technical station operators, for 3 years at US\$150 per month	162,000		N/A	0	162,000				
	Assistants for US\$1,000 per month for watersheds	27,000		N/A	0	27,000				
	Analysis of dumping at 23 points (x 3 watersheds) (6 times per year)	124,200	PC	NO	124,200	0	NO			
	Outfitting of laboratory facility	13,350		N/A	0	13,350				
	Laboratory analysis (Bacteriological, monthly, US\$5,400; BOD, monthly, US\$6,480; suspended solids, monthly, US\$5,400; physical-chemical-metals/surface waters, US\$30,388; laboratory analysis of 17 points per watershed of groundwater US\$25,092), for 3 years	73,260	NCB	NO	73,260	0	NO			
	II.1.7 Maintenance of equipment and water works	35,000		N/A	0	35,000				
	Two-day workshops	36,000		Training	0	36,000				
	Comprehensive training workshops x 3 days x 5 people in 3 watersheds	18,000		Training	0	18,000				
	iv) national and regional events and celebrations to reflect on and improve water usage habits and practices	45,000	PC	NO	45,000	0	NO			
	v) Mass awareness campaigns on the importance of water and its social, economic, and environmental value	180,000	QCBS	YES	180,000	0	NO			
	CONSULTING SERVICES									
	Midterm evaluation	30,000	QCBS	YES	30,000	0	NO			
	TV and radio for campaigns	171,740	SBC	YES	30,422	141,318	NO			
	a) Evaluations	20,000	CQS	NO	20,000	0	NO			
	d) Developing operations and maintenance plans for the main water network and dam safety plans	300,000	QCBS	YES	300,000	0	NO			
	e) Developing upper watershed management programs	300,000	QCBS	YES	300,000	0	NO			
	ii) Consulting on preparation of illustrated booklets on specific IWRM issues and the new culture of water, including copies	38,200	CQS	NO	38,200	0	NO			
	iii) Consulting on creative courses on the issue of water and local traditions and customs for sustainable use (3 watersheds)	55,800	CQS	NO	55,800	0	NO			
	vi) Consulting, reproduce copies of the video and texts (for 2 years)	10,000		N/A	0	10,000				
	vii) Consulting, courses for professors, for 9 consultants, for 2 years	72,000		N/A	0	72,000				

Ref. No.	Category and description of procurement contracts	Estimated cost of procurement (US\$)	Procurement method	Ex ante review	Source of financing US\$		Prequalification YES/NO	Estimated dates		Status (pending, in process, awarded, cancelled)
					IDB	LOCAL		Publication of specific procurement	Completion of contract	
	Specialized professional for pilot watershed nodes (2 consultants for 2 years at US\$2,500 per month, for 3 watersheds)	360,000		N/A	0	360,000				
	Quality management specialist (1 consultant for 3 years at US\$2,000 per month), for 3 watersheds	144,000	IC	YES	144,000	0	NO			
	National specialist to propose mitigation measures (mining and industrial liabilities), for 15 months, at US\$3,500 per month, 2 consultants	105,000	IC	YES	105,000	0	NO			
	International modeling specialist, for 31 weeks over 2 years	93,000	IC	YES	93,000	0	NO			
	Water quality management specialist - per watershed, for 3 years, for US\$2,500 per month, for 2 consultants	180,000		N/A	0	180,000				
	Laboratory specialist - chemist - in watersheds, for 3 years, for US\$1700 per month	122,400		N/A	0	122,400				
	Technical sampling specialist, in watersheds, for 2 consultants, for 3 years, at US\$1,000 per month	72,000	IC	NO	72,000	0	NO			
	TOTAL YEAR 3	4,271,825			2,633,402	1,638,423				
	YEAR 4									
	GOODS									
	Operating systems (for 6 work stations) and office software	1,200	PC	NO	1,200	0				
	Development software for SIG applications (extensions), communications (domain security software) and web (web publication utilities, graphic design software)	4,425	PC	NO	4,425	0				
	Security suite (for 6 stations x 3 years)	375	PC	NO	375	0				
	To monitor dumping: 1-liter glass and plastic flasks (250 per year/watershed), BOD flask (100), 132 coolers, 9 reagents, 3 tubes and accessories for analysis, 3 beakers, pipettes, and test tubes	57,640	NCB	NO	57,640	0				
	GPS equipment	5,400	PC	NO	5,400	0				
	For water quality (laboratory sampling): pH meter/thermometer 3, conductivity meter, oxygen meter, turbidity meter 3, double boiler 3, filtration equipment 3, BOD incubators 3, flask systems 3, sterilizing oven 3	53,400	NCB	NO	53,400	0				

[illegible]